

List of Contents

NUMBER 1

E. H. Bokelberg, K. H. Hunt and P. R. Ridley	1	Spatial motion—I. Points of inflection and the differential geometry of screws
P. R. Ridley, E. H. Bokelberg and K. H. Hunt	17	Spatial motion—II. Acceleration and the differential geometry of screws
I. S. Kochev	37	r.m.s. Shaking force along a given direction. Loci, principal axes and other properties
I. S. Kochev	45	Balancing of planar linkages for prescribed principal axes and minor/major ratio of the r.m.s. shaking force
I. S. Kochev	53	Active balancing of the frame shaking moment in high speed planar machines
I. S. Kochev	59	Qualitative theory of the reactions and stresses in high speed planar linkages
A. Daadbin and Y. M. Chow	69	A theoretical model to study thread loosening
Ziya Yapar	75	Spatial conchoidal and elliptic motions
Zhao Xiong Chen	93	Proof of the undercutting phenomenon for an involute tooth profile on a cylindrical gear
Z. Huang and H. B. Wang	97	Dynamic force analysis of n -d.f. multiloop complex spatial mechanisms
<i>Software Survey Section</i>	I	

NUMBER 2

Clément M. Gosselin, Jaouad Sefrioui et Marc J. Richard	107	Solutions polynomiales au problème de la cinématique directe des manipulateurs parallèles plans à trois degrés de liberté
G. Shouchun and D. Redekop	121	A new graphical method to size a flywheel
Ching-Kuo Lin and C. H. Chiang	131	Syntheses of planar and spherical geared five-bar function generators by the pole method
Shih-Hsi Tong and C. H. Chiang	143	Syntheses of planar and spherical four-bar path generators by the pole method
Chien H. Chiang, Wei H. Chieng and David A. Hoeltzel	157	Synthesis of the <i>RSCR</i> mechanism for four precision positions with relaxed specifications

J. Eddie Baker	169	The planar analogues of Goldberg's conoidal and anconoidal linkages
I. A. Parkin	177	A third conformation with the screw systems: finite twist displacements of a directed line and point
Wen-Miin Hwang and Yii-Wen Hwang	189	Computer-aided structural synthesis of planar kinematic chains with simple joints
B. M. Bahgat and M. O. M. Osman	201	The parametric coupler curve equations of an eight link planar mechanism containing revolute and prismatic joints
B. M. Bahgat, M. O. M. Osman and J. Frazao	213	Consecutive train components analysis for inverse position of spherical wrist robot's manipulators
<i>Software Survey Section</i>	I	

NUMBER 3

Obituary	iii	
Ziya Şaka and Yüksel Yilmaz	225	Torsional vibrations of camshafts
Hong-Sen Yan	235	A methodology for creative mechanism design
C. H. Chiang	243	Spherical kinematics in contrast to planar kinematics
X. Shi and R. G. Fenton	251	Solution to the forward instantaneous kinematics for a general 6-DOF Stewart Platform
K. Watanabe	261	Application of natural equations to the synthesis of curve generating mechanisms
I. S. Kochev	275	Planar assemblies of sub-linkages with optimal dynamic characteristics
J. S. Rao	283	Life estimation of gear transmission unit in a turbine generator set due to short circuits
Li Zhe, Li Li and Bai Shixian	295	A new method of predicting the occurrence of contact loss between pairing elements in planar linkages with clearances
Yusuf Yaylı	303	Homothetic motions at E^4
L. D. Seneviratne and S. W. E. Earles	307	Chaotic behaviour exhibited during contact loss in a clearance joint of a four-bar mechanism
Osman Gürsoy	323	Some results on closed ruled surfaces and closed space curves

Jiří Mrázek	331	Theoretical analysis of dynamics of four-bar beat-up mechanism of a loom
Ctirad Kratochvíl	343	A contribution to the problem of dynamic analysis of electromechanical drive systems
V. Zeman, J. Dupal and Z. Hlaváč	349	Optimization of mechanical systems parameters in transient vibration
V. Cossalter, A. Doria, M. Pasini and C. Scattolo	357	A simple numerical approach for optimum synthesis of a class of planar mechanisms
Allen S. Hall Jr	367	A note on the history of kinematic coefficients
Corrigenda	369	
Addenda	371	
<i>Software Survey Section</i>	I	

NUMBER 4

J. E. Beard, D. W. Yannitell and G. R. Pennock	373	The effects of the generating pin size and placement on the curvature and displacement of epitrochoidal gerotors
Yue-Qing Yu, Yin-Fu Qiu and Yuan Zhang	391	New investigation on critical running speeds of a high-speed elastic space mechanism
V. S. Karelin	403	A numerical method for determining positions of links of high-class linkages
Philippe E. Gaultier and William L. Cleghorn	415	A spatially translating and rotating beam finite element for modeling flexible manipulators
Zdeněk Koloc and Miroslav Václavík	435	Dynamics of the picking mechanism of a rapier loom
B. Hořeni	443	Double-mass model of an elastic cam mechanism
José M. Rico Martínez and Joseph Duffy	451	Orthogonal spaces and screw systems
José M. Rico Martínez and Joseph Duffy	459	Classification of screw systems—I. One- and two-systems
José M. Rico Martínez and Joseph Duffy	471	Classification of screw systems—II. Three-systems
Jerzy Kowalski	491	Modeling knowledge-based system for optimum machine design
<i>Software Survey Section</i>	I	

NUMBER 5

Psang Dain Lin and Jen Fun Chen	507	Accuracy analysis of planar linkages by the matrix method
Donald L. Cronin	517	Shake reduction in an automobile engine by means of crankshaft-mounted pendulums
Li Zhe and Bai Shixian	535	Optimum balancing of linkages with clearances
Anders Hedman	543	Analysis of transmissions with multi-turbine hydro-dynamic torque converters
Jen-San Chen and C. H. Chiang	555	Coordinations of coupler-line positions with input-link rotations by a planar four-bar linkage
C. Conti, P. Corron and P. Michotte	563	A computer-aided kinematic analysis system for mechanism design and computer simulation
Rachid Manseur and Keith L. Doty	575	A complete kinematic analysis of four-revolute-axis robot manipulators
Rachid Manseur and Keith L. Doty	587	Fast inverse kinematics of five-revolute-axis robot manipulators
S. Krishnamurty and David A. Turcic	599	Optimal synthesis of mechanisms using nonlinear goal programming techniques
Cheng-Ho Hsu	613	Generalization of mechanical devices with any number of general constraints
J. Rastegar	623	Grashof-type movability conditions of spatial RSRC mechanisms with transmission angle control
Addenda	633	

NUMBER 6

John E. Beard, Malcolm E. Wright, Michael Mailander and Mark Miller	635	Effects of design parameters on geared two-link mechanisms
Serge Abrate	645	Vibrations of belts and belt drives
A. E. Kanarachos and C. N. Spentzas	661	A Galerkin method for the steady state analysis of harmonically excited non-linear systems
Wen-Miin Hwang and Chi-Feng Chang	673	Remarks on the motion of link in the dwell-position
Han-Pang Huang	687	Mathematical formulation of constrained robot systems: a unified approach

Daniel W. Williams and David A. Turcic	701	An inverse kinematic analysis procedure for flexible open-loop mechanisms
Sabry A. El-Shakery	715	Kinematic analysis of combined roller-chain and planar mechanisms
D. T. Pham, K. C. Cheung and S. H. Yeo	729	Determination of the initial centre of rotation of a bar being pushed or pulled during handling
Chang-Jin Li and T. S. Sankar	741	Fast inverse dynamics computation in real-time robot control
<i>Book Reviews</i>		
T. E. Shoup	751	Solid Shape. By Jan J. Koenderink
R. L. Serrette	751	An Introduction to the Finite Element Method using Basic Programs, 2nd edn. By David K. Brown